

## Manganese in Drinking Water Guidance Sheet for Public Water Systems

In 2015 the Drinking Water and Groundwater Protection Division (Division) will be requiring manganese sampling at every Public Community and Non-Transient Non-Community drinking water system. Most community systems will be required to sample during the second quarter and most NTNC systems will need to sample during the third quarter unless manganese is already included in the system's monitoring schedule for 2015, in which case, the system will monitor according to its pre-established monitoring schedule. Please review and follow the system's 2015 monitoring schedule that was provided by the Division.

### What is manganese?

Manganese is a common mineral found in rocks, soil, groundwater, and some surface water in Vermont. It is a naturally-occurring component of most foods and is a trace mineral in our diets. Manganese is an essential metal required for many metabolic and cellular functions.

### What is changing about the regulation of manganese in drinking water?

Manganese is regulated as a secondary contaminant due to aesthetic concerns. Manganese equal to or greater than 0.05 mg/L can lead to an unacceptable taste or staining of fixtures. Recent studies have shown potential health effects from consuming too much manganese. Because of these studies, the Vermont Department of Health and the Division have worked together to establish a Health Advisory for Manganese in drinking water of 0.3 mg/L (or 300 ppb).

### What health effects are associated with manganese?

Low amounts of manganese are essential to good health. Exposure to too much manganese over a long time could harm the nervous system. The Health Advisory for manganese in drinking water is 0.3 mg/L, established by the Vermont Department of Health. Infants and children up to 1 year old should not be given water containing manganese over 0.3 mg/L because they could have greater difficulty processing manganese than older children and adults. Special care should be taken to avoid making infant formula with water with a manganese concentration exceeding 0.3 mg/L. The US EPA has helpful manganese health information available on its website: [http://www.epa.gov/safewater/ccl/pdfs/reg\\_determine1/support\\_cc1\\_magnese\\_dwreport.pdf](http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf)

### How will sample results be managed?

Follow the 2015 monitoring schedule provided by the Division. Obtain a sample bottle from the system's preferred lab, assuming that lab is certified by the Vermont Department of Health. Click here to find a list of certified labs: [http://healthvermont.gov/enviro/ph\\_lab/documents/certified\\_labs.pdf](http://healthvermont.gov/enviro/ph_lab/documents/certified_labs.pdf). Collect a sample of finished water from each source at the entry point to the distribution system. If multiple sources combine prior to treatment, it is permissible to sample a blended finished water sample for each entry point; however, the system must be certain that all active sources are represented in the blended sample. If the initial sample produces a manganese level at or above 0.3mg/L, a confirmation sample will be required. If the average of the confirmation sample and the original sample is at or above 0.3 mg/L, public notice will be required and the water system will be required to perform quarterly manganese monitoring. Once four quarters of manganese sampling results are received, the Running Annual Average (RAA) for manganese will be assessed. If the manganese RAA meets or exceeds 0.3 mg/L, the water system will be required to install treatment or develop some means by which water served to users contains a manganese concentration below 0.3 mg/L. Bottled water is not an acceptable long-term solution to provide water that meets the manganese Health Advisory.

Who can I contact for more information?

With health-related questions, please contact the Vermont Department of Health Environmental Health Division at 800-439-8550.

There are also several contacts within the Drinking Water and Groundwater Protection Division that can provide assistance or answer questions related to manganese:

Billy Kahn – Compliance Analyst: 802-585-4898 or [billy.kahn@state.vt.us](mailto:billy.kahn@state.vt.us).

Julie Hackbarth – Compliance and Certification Manager: 802-585-4897 or [julie.hackbarth@state.vt.us](mailto:julie.hackbarth@state.vt.us).

Ben Montross – Compliance and Support Services Section Chief: 802-498-8981 or [ben.montross@state.vt.us](mailto:ben.montross@state.vt.us).

This guidance sheet and related environmental information are available electronically via the internet. For information visit us through the Vermont Homepage at <http://www.vermont.gov> or visit VT DWGWP directly at <http://www.drinkingwater.vt.gov>

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